

## ABSTRACT

An arrangement, for use in whitening a patient's teeth includes an arched surface and an array of light- generating devices, for example, light emitting diodes positioned on the arched surface. The light-generating devices are arranged to form a relatively uniform field of light in a particular range of wavelengths, and further arranged to focus the generated light in an overlapping manner onto a patient's teeth when the mouthpiece is properly positioned relative to the patient's face. The proper positioning is aided by a number of light sources, in the visible range, that shine on the patient's face in a predetermined manner when the mouthpiece is properly positioned. To remove whatever heat is generated at the surface of the patient's teeth in the course of the procedure, the mouthpiece includes air passages between the light emitting devices, and a fan that draws air away from the patient's face.